

**WHAT IS CLAIMED IS:**

1. A method of separating cells of interest which method comprises:
  - determining cells of interest;
  - selecting a promoter specific for said cells of interest;
  - introducing a nucleic acid molecule encoding green fluorescent protein under control of said promoter into a plurality of cells; and
  - separating cells of said plurality of cells that are expressing said green fluorescent protein, wherein said separated cells are said cells of interest.
2. The method of claim 1 wherein said introducing comprises viral mediated transformation of said plurality of cells.
3. The method of claim 2 wherein said viral mediated transformation comprises adenovirus mediated transformation.
4. The method of claim 1 wherein said introducing comprises electroporation.
5. The method of claim 1 wherein said introducing comprises biolistic transformation.
6. The method of claim 1 wherein said introducing comprises liposomal mediated transformation of said plurality of cells.
7. The method of claim 1 wherein said separating comprises fluorescence activated cell sorting.

8. The method of claim 1 wherein said cell of interest is a neuronal cell and said promoter is specific for said neuronal cell.

9. The method of claim 8 wherein said neuronal cell and said promoter are selected from the group consisting of: a neuron and a neuron-specific enolase promoter; a developing or regenerating neuron and a MAP-1B promoter; a neuron and an L1 promoter; a dopaminergic neuron and an aromatic amino acid decarboxylase promoter; a noradrenergic neuron and a dopamine  $\beta$ -hydroxylase promoter; a neuron and an NCAM promoter; a neuronal precursor cell and an NCAM promoter; a neural cell and an NCAM promoter; a neuronal precursor cell and an HES-5 HLH protein promoter; a neuron and an  $\alpha 1$ -tubulin promoter; a neuronal precursor cell and an  $\alpha 1$ -tubulin promoter; a developing or regenerating neuron and an  $\alpha 1$ -tubulin promoter; a neuron and an  $\alpha$ -internexin promoter; a developing or regenerating neuron and an  $\alpha$ -internexin promoter; a peripheral neuron and a peripherin promoter; a mature neuron and a synapsin promoter; and a developing or regenerating neuron and a GAP-43 promoter.

10. The method of claim 1 wherein said cell of interest is an oligodendrocyte and said promoter is specific for said oligodendrocyte.

11. The method of claim 10 wherein said oligodendrocyte and said promoter are selected from the group consisting of: an oligodendrocyte and a cyclic nucleotide phosphorylase I promoter; a myelinating oligodendrocyte and a myelin basic protein promoter; an oligodendrocyte and a JC virus minimal core promoter; an oligodendrocyte precursor and a JC virus minimal core promoter; a myelinating oligodendrocyte and a proteolipid protein promoter; and an oligodendrocyte precursor and a cyclic nucleotide phosphorylase II promoter.